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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of Part 90 of the	)	
Commission's Rules to Provide	)	
for the Use of the 220-222 MHz Band	)	**PR Docket No. 89-552**
by the Private Land Mobile	)	
Radio Service	)	
	)	
Implementation of Sections 3(n) and 332	)	
of the Communications Act	)	**GN Docket No. 93-252**
	)	
Regulatory Treatment of Mobile Services	)	

To: The Commission

COMMENTS OF COMTECH COMMUNICATIONS, INC.

Respectfully submitted,

COMTECH COMMUNICATIONS, INC.

Russell H. Fox
GARDNER, CARTON & DOUGLAS
1301 K Street, N.W.
Suite 900, East Tower
Washington, D.C. 20005
(202) 408-7100

Its Attorneys

Dated: September 13,1995

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Summary

The Commission's proposal concerning the modification of 220 MHz authorizations unnecessarily restricts licensees' ability to serve the public. Should the Commission adopt its proposal, however, the proposal should be clarified and changed so that licensees can relocate their station facilities and provide service throughout their authorized contour by: 1) reducing power or antenna height; or 2) using directional antennas at "primary" and "additional" base station sites. In addition, licensees' existing 38 dBu V/m contour should be based on the maximum ERP and HAAT permitted, based upon their licensed site. The Commission should also allow all 220 MHz licensees to use additional "fill in" base stations without obtaining a "service area authorization." ComTech supports the Commission's proposal to extend the time by which licensees who obtain service area authorizations must construct their facilities. Finally, the Commission should continue to include on a licensee's authorization the location from which the 38 dBu V/m coverage contour is calculated.

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COMMENTS OF COMTECH COMMUNICATIONS, INC.

ComTech Communications, Inc. ("ComTech" or the "Company"), by its attorneys, pursuant to the provisions of Section 1.415 of the Rules and Regulations of the Federal Communications Commission ("FCC" or "Commission") hereby submits its Comments in response to the Fourth Notice of Proposed Rulemaking ("Fourth Notice") adopted in the above referenced proceeding in which the Commission proposes regulations that will allow existing licensees of "local" 220-222 MHz systems to seek minor modifications of their licenses to construct and operate base stations at locations other than those specified in their current authorizations.[1]

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[1] In the Matter of Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, Fourth Notice of Proposed Rule Making, PR Docket No. 89-552, FCC 95-381 (released August 29, 1995).

I. INTRODUCTION

ComTech Communications, Inc., headquartered in northern California, is one of the most active legitimate participants in the 220 MHz industry. It has already initiated the construction and operation of 220 MHz facilities in many locations. Its affiliate, ComTech Inc., holds one of four authorizations for nationwide 220 MHz service. In addition to its nationwide operations, ComTech has acquired several local 220 MHz stations and manages facilities licensed to other entities.

Like many 220 MHz licensees, ComTech has been frustrated by the Commission's failure to provide a mechanism to secure modifications to 220 MHz authorizations. Because applications for local 220 MHz licenses were submitted over four years ago, many antenna sites that may have once been acceptable are no longer viable. Moreover, because the rules under which the 220 MHz applications were submitted did not require an applicant to have a definitive commitment to be able to use a proposed site, applicants reasonably anticipated that they would be able to modify their authorizations post licensing, if they observed applicable co-channel separation requirements. Licensees could (as ComTech has in its role as a station manager) construct facilities pursuant to FCC grant of special temporary authority ("STA"). However, the uncertainty associated with such temporary authority in the case of stations requiring license modifications stymied the growth of the 220-222 MHz industry.

The proposals in the Fourth Notice represent the first opportunity for 220 MHz licensees to clarify their ability to continue to operate at newly licensed locations.

ComTech believes that the Commission's approach towards maintaining its original licensing intent is overly restrictive. Nevertheless, it appreciates that the Commission has initiated this process, which will ultimately allow licensees at least some relief from the current bar on the submission of applications for modification. Because ComTech believes that the Commission's proposals can be improved, while remaining faithful to the Commission's goals, ComTech is pleased to have this opportunity to submit the following comments.

II. COMMENTS

A. Modification Proposal

1. General

The Commission proposes that 220 MHz licensees be permitted to modify their authorizations to locate their base stations anywhere within their existing service contour, so long as transmissions at their new station locations do not exceed a predicted field strength of 38 dBu V/m at the service area boundary. Under this proposal, the Commission assumes, a licensee could seek modification of its license to move to a new location, but in so doing would be required to reduce its effective radiated power ("ERP") in order to maintain a signal strength of no greater than 38 dBu V/m at its existing service area contour.

This proposal will not allow even the slightest movement of a base station using an omni directional antenna without reduction in power, because of the resultant change in the station's service contour. ComTech appreciates the Commission's desire to avoid the submission of applications which would be mutually exclusive. However,

the regulations governing the submission of such applications can be structured so that the Commission will not receive mutually exclusive applications, while allowing changes in licensees' coverage contours. In light of the existence of such a structure, the Commission's proposal is not in the public interest, because it unnecessarily restricts a licensee's ability to serve the public.

If the Commission adopts its proposal, and licensees must retain their existing 38 dBu V/m contour, the FCC's proposal requires additional clarification and modification, in order to increase its utility to existing 220 MHz licensees and to allow those licensees to serve the public.[2] First, ComTech recommends that the Commission specifically permit modifications of station authorizations by licensees required to retain their 38 dBu V/m contour through either 1) reduction of the licensee's power or antenna height; or 2) use of directional antennas at "primary" and "additional" base station sites.

Reduction of power or antenna height is not the only means by which a licensee can ensure that it does not, after relocation of the transmitter facilities, exceed its current coverage contour. So long as the signal produced does not exceed the prescribed level at the service area boundary, the Commission should be unconcerned about the particular radiation pattern produced by an antenna. Using directional antennas, licensees would <u>not</u> necessarily be required to reduce their power levels and antenna

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[2] These modifications are necessary regardless of whether the FCC adopts the AMTA proposal. If that proposal is adopted, ComTech's recommendations will still be important for licensees located 120 km from co-channel licensees, who will not be allowed to change their coverage contours. If AMTA's proposal is not adopted, the Commission's incorporation of ComTech's recommendations are critical, so that licensees can meaningfully utilize all of their 38 dBu V/m contour.

heights, as the Commission presumes they would, in order not to exceed transmissions of 38 dBu V/m within their existing service contour Computer programs to predict coverage contours are readily available at reasonable cost. Moreover, all antenna manufacturers publish pattern information for their directional antennas. Accordingly, the use of such antenna systems will easily allow licensees to provide service in their coverage area, often without a reduction in antenna power or HAAT.

Second, licensees existing 38 dBu V/m contour should be based upon the maximum ERP and HAAT permitted at their antenna site. Section 90.729 of the rules specifies the maximum permissible ERP allowed with respect to various antenna sites. These regulations notwithstanding, some licensees may not have specified the maximum ERP permitted at their antenna site on their initial application (due to limitations of technology at the time their applications were filed). By using the maximum ERP permitted at an antenna site to determine a licensee's current 38 dBu V/m contour, licensees will be afforded the greatest flexibility possible without causing harmful interference to co-channel licensees.

Using the maximum allowable ERP to determine a licensee's current 38 dBu V/m contour is consistent with the regulations governing co-channel separation at 220-222 MHz as well as the Commission's approach in other services. The 120 km co-channel separation criteria, which was the basis for the Commission's channel assignment policy, is based upon the maximum parameters of a base station facility of

500 watts ERP and 150 meters HAAT.[3] Accordingly, allowing a licensee, through the use of directional antennas and otherwise to provide service with a 38 dBu V/m signal level at the edge of a service area calculated using the maximum allowing ERP at its antenna site will not cause either mutual exclusivity with or harmful interference to any existing licensee.

This approach would be consistent with the Commission's regulations governing 800 MHz co-channel separation requirements. In general, 800 MHz co-channel stations must be located at least 70 miles apart. However, a co-channel separation table contained in Section 90.621 of the regulations provides guidelines for locating co-channel facilities closer than 70 miles. That co-channel separation table "specifies separations calculated with the assumption that, regardless of a station's licensed transmitting power, it will be protected as though it were operating at its maximum allowable power...and its licensed antenna height."[4] The rules governing 220-222 MHz systems do not permit short spacing. Accordingly, there are no regulations similar to Section 90.621 that apply to 220-222 MHz stations. However, like 800 MHz systems, 220 MHz licensees should be permitted maximum flexibility to provide service throughout the 38 dBu V/m coverage contour that would be served if they were to use maximum transmitter power at their authorized antenna site. As noted above, the co-channel separation standard "builds in" this assumption. Explicit Commission recognition of

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[3] *In the Matter of Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services*, Report and Order, PR Docket No. 89-552, 6 FCC Rcd 2356, 2371 (1991).

[4] *In the Matter of Co-Channel Protection Criteria for Part 90, Subpart S Stations Operating Above 800 MHz*, Report and Order, PR Docket No. 93-60, 8 FCC Rcd 7293 (1993).

that presumption would now aid licensees who might otherwise be limited to an unnecessarily smaller coverage area.

2. Additional Base Stations

The Commission proposes to allow all licensees modifying their authorizations to construct an unlimited number of additional or "fill in" base stations within their existing service area contour, so long as the transmissions from these sites do not exceed the predicted field strength of 38 dBu V/m at the service area boundary. ComTech agrees with this approach. As noted above, however, ComTech strongly urges that the existing service area contour be calculated based upon a licensee's maximum allowable ERP at its existing licensed location. Moreover, ComTech suggests that this proposal be extended to all 220-222 MHz licensees, not just those who require a "service area authorization" because of a need to modify the location of their primary base station location, as those terms are defined in the Fourth Notice. Because of shielding, uneven terrain, and other factors, existing licensees may wish to retain their existing base station location (and would otherwise not be impelled to seek a service area authorization) yet would significantly benefit by the ability to use additional base stations. Accordingly, the Commission should allow licensees to obtain a service area authorization without the need to change their primary base station location.

3. Technical Showings

The Commission proposes that licensees situated in areas where signal levels could be affected by unusual terrain could be allowed to move to alternative locations with transmitter heights and antenna powers greater than what would otherwise be

permitted. ComTech recognizes that, in theory, a transmitter could be relocated, in a mountainous area, with no reduction in antenna height or ERP without a resulting expansion of the station's coverage contour. However, power levels now authorized are at the maximum that can be realized with state of the art equipment now available.

Of significantly greater value to licensees now authorized in valley areas, will be licensees' ability to relocate transmitters to nearby mountains. Such relocations can be accomplished without expanding licensees' currently authorized coverage areas, through the use of reduced ERP and directional antennas. For example, one of the mountain top sites studied by ComTech would permit a base station relocation of 26 km, an increase of the antenna height to 273 meters (HAAT), a decrease in the ERP from 500 to 60 watts and the use of a directional antenna with the retention of the licensee's original coverage contour. Accordingly, while the Commission's proposal appears attractive, the more likely system modifications in mountainous regions are those described above.

4. Co Channel Separation, Mutual Exclusivity, and Related Considerations

The Commission notes that under its proposal, 220 MHz licensees obtaining modifications will be able to satisfy the Commission's co-channel separation requirements and applications filed by such licensees will not be considered mutually exclusive. The FCC reaches this conclusion based upon its presumption that "a licensee relocating its authorized base stations or adding fill-in base stations will have to operate these stations at lower power levels and antenna heights than currently authorized in order not to exceed transmissions of 38 dBu V/m within their existing service contour."

ComTech disagrees with the Commission's rationale. As noted above, in many instances, licensees can retain their 38 dBu V/m contours without reduction of ERP or transmitter heights.[5] ComTech does not disagree with the Commission's efforts to eliminate the possibility of the Commission receiving mutually exclusive applications. However, under ComTech's plan, no mutually exclusive applications would be received and licensees would retain flexibility in the manner by which they could provide coverage throughout their currently authorized service area.[6]

The Commission inquires whether a time limit should be placed on Phase I licensees' ability to receive 10 dB protection at their licensed coverage area contour from Phase II licensees. ComTech believes that this issue is more appropriately addressed in the Third Notice. Generally, however, ComTech disagrees with any proposal to limit a Phase I licensee's ability to receive the protection it would be afforded at its licensed coverage area contour so long as the Commission does not permit any change in that contour.

B. Construction and Operation Requirements

The Commission proposes that licensees who submit applications during the anticipated filing window will be issued "service area authorizations", which will replace their existing authorization, and that the base station constructed under the service area authorization will be the licensee's "primary base station." The Commission's proposal is confusing because it does not make clear how interested

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[5] Although some relocations to, for example, mountainous regions, will require reduction in ERP.

[6] Preserving the flexibility for licensees to serve their coverage contour in the manner suggested by ComTech would not change the Commission's conclusion that the predicted 28 dBu V/m contour of a modified station would always be located outside a co-channel licensee's 38 dBu V/m service contour.

parties (among others, potential Phase II licensees) will be able to determine a licensee's protected service area. Under the FCC's proposal, licensees can employ fill in base stations, and may be licensed for a primary base station at other than their existing licensed site. However, licensees will be limited to providing coverage based upon a location specified on their existing authorization. The Commission should continue to include, on a licensee's authorization, the location from which a licensee's 38 dBu V/m coverage contour is calculated.

The Commission proposes to extend, for a period of four months, the time by which licensees who obtain service area authorizations must construct their facilities. ComTech supports this proposal. The FCC states that licensees obtaining service area authorizations may construct fill in stations, but will be required to notify the Commission of their construction. It is not clear from the Fourth Notice whether prior Commission approval is necessary for construction of such fill in stations. ComTech proposes that no such prior approval be required. By definition, the fill in stations will operate only within a licensee's authorized service area. However, there is value in licensees knowing the location of fill in stations. Accordingly, licensees using such stations should be required to notify the Commission as to the location of those stations within 30 days of the time such stations are operational.

As noted above, it is also not clear how a licensee that does not wish to amend its current authorization to change primary base station sites will obtain authority for fill in stations. As noted above, ComTech recommends that the Commission allow

licensees to obtain a service area authorization without the need to change their primary base station location.

In order to protect against licensees constructing primary base stations of minimal power to meet the construction requirement, the Commission would require licensees seeking service area authorizations to operate their primary base station at a power and antenna height that will result in the transmission of a predicted signal of 38 dBu V/m or more over at least 50% of the licensee's existing service area. ComTech does not object to the Commission's proposal. However, this change underscores ComTech's recommendation that the Commission specifically authorize the use of directional antennas to offer service. Without directional antennas a licensee may be unable to serve 50% of its current coverage area, if it is required to reduce its transmitter power based upon a several mile move. However, with the use of directional antennas, full power may be preserved, allowing the licensee to serve a greater percentage of its current coverage area.

III. CONCLUSIONS

The Commission's proposal to permit 220 MHz licensees to locate their base stations anywhere within their existing service contour so long as their transmissions to do not exceed a predicted field strength of 38 dBu V/m within the contour unnecessarily hinders the licensees' ability to provide service. In the event that the Commission adopts its proposal, it should modify the proposal to increase its utility to existing 220 MHz licensees. In particular, the Commission should permit licensees to employ directional antennas, at full power, at new primary, and fill in sites to cover

their authorized contour. Second, the Commission should define a licensee's contour as created by the maximum ERP and HAAT, based upon the currently licensed location.

Furthermore, the Commission should permit licensees to obtain a service area authorization without having to change the primary base station location. Finally, the Commission should adopt its proposal to extend the time by which licensees who obtain service area authorizations must construct their facilities.

WHEREFORE, THE PREMISES CONSIDERED, ComTech Communications, Inc. submits the foregoing comments and urges the Commission to act in a manner consistent with the views expressed herein.

Respectfully submitted,

COMTECH COMMUNICATIONS, INC.

By: Russell H Fox

Russell H. Fox
GARDNER, CARTON & DOUGLAS
1301 K Street, N.W.
Suite 900, East Tower
Washington, D.C. 20005
(202) 408-7100

Its Attorneys

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